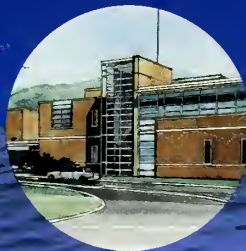
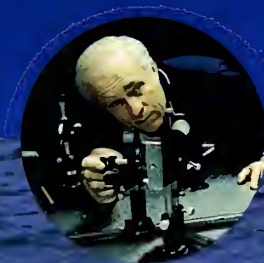
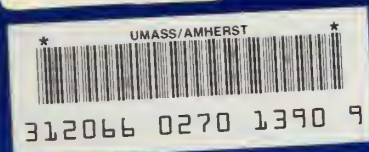


UNIVERSITY OF MASSACHUSETTS DARTMOUTH

MASS.
UM 500.
302: C63



CMAST The Center for Marine Science and Technology

Building Excellence in Research, Education, and Economic Development





University of Massachusetts Dartmouth
Center for Marine Science and Technology

CMAST Update '99

The Center for Marine Science and Technology opened in October of 1997 and has quickly grown, both in its scientific contributions and as a dynamic part of the community.

Programs that were in place in '97 have expanded to include affiliations with other universities, businesses and industry.

- Our Fisheries Assessment and Management Systems surveys of Closed Area II in the Georges Bank, conducted in collaboration with the Fisheries Survival Fund of New Bedford, the National Marine Fisheries Service and the Virginia Institute of Marine Sciences, have brought to light data which indicates a high density of mature scallops in this Closed Area. The data further suggests that an alternative management strategy for rotational "fishing" could allow for increased landings of scallops while reducing environmental stress. U.S. Secretary of Commerce William M. Daley recently requested the New England Fishery Management Council to open the Closed Area in June of this year.

Fisheries Assessment and Management also plays a vital role in the Massachusetts Fisheries Recovery Commission that was created under the authorization and direction of the Seaport Bond Bill and the Secretary of Environmental Affairs for the Commonwealth of Massachusetts. Brian Rothschild, CMAST's Director, chairs the Commission.

- In Ocean Prediction and Monitoring we have expanded to include application of the Harvard Ocean Prediction System to shallow water regions of the western north Atlantic and the Gulf of Maine. And we now have extensive capabilities for processing, archiving and visualizing—simultaneously—sea surface temperature, color, in-situ temperature and chlorophyll profiles as well as commercial fish catch information in the Gulf of Maine.

- Our Commonwealth Coastal Zone Systems component fills the niche between basic and applied research, thus providing high quality scientific support for the management of coastal ecosystems including bays, harbors, wetlands and watersheds. We also do research in coastal ecosystem ecology, wetlands ecology, fish population biology, ornithology, phytoplankton ecology, benthic ecology, biogeo-chemistry, marine physiology (toxics), eelgrass ecology, data management, physical oceanography and hydrology. COMCOZ is the repository for much of the ecological data on estuaries in southeastern Massachusetts.



Research conducted by a team of fishermen and scientists suggests that an alternative management strategy for rotational "fishing" could allow for increased landings of scallops while reducing environmental stress.

Helping land the catch are (l-r)
Alison Thibodeau (CMAST), Bill DuPaul (Virginia Institute of Marine Sciences) and Mike Desmarais (UMass Dartmouth student).

- A new CMAST Aquaculture Systems development is the building of a fish hatchery where summer flounder will be raised from egg to 20-gram juvenile. This is a collaborative effort developed between Mariculture Technologies Inc. and CMAST and will advance the science and application of aquaculture in the northeast. The collapse of the New England ground fishery is well known; and we are very dependent on foreign supply for our seafood. In fact, seafood is second only to petroleum products in the natural resource trade deficit of the U.S. It therefore stands to reason that the current demand for seafood imports will eventually deplete other fishery ecosystems world-wide, just as it has done with our own.

GOVERNMENT DOCUMENTS
COLLECTION

OCT 28 1999

University of Massachusetts
Depository Copy

New programs that have expanded our base at CMAST, include:

- A partnership with the **Naval Undersea Warfare Center** at Newport, RI in an Unmanned Underwater Vehicles' project. The UUVs will be used for marine exploration, survey and monitoring. An example of collaborative work being conducted is the mounting of a laser on a REMUS underwater vehicle developed for the Navy by Woods Hole Oceanographic Institution. Tests conducted in CMAST's Acousto-Optics Tank Facility and in Clark's Cove will demonstrate the feasibility of using the laser to communicate from and to track the vehicle through the ocean's surface. This laser technology will also be used to determine ocean-scattering characteristics.

- **Global Warming Studies** in the Antarctic, which are a collaborative investigation of the Southern (Antarctic) Ocean that plays a central role in regulating the global environment through its responses to the Earth's climatic cycles. Current studies will contribute to our capabilities in predicting future global climate changes, since the Southern Ocean exerts considerable control on carbon dioxide concentrations.

Special facilities:

When CMAST formally opened, we had two Special Facilities—the R/V Lucky Lady and the Acousto-Optic Test Tank.

We have since added the following:

- **Computer Lab**

The computing capabilities at CMAST are met by 21 Silicon Graphics computer systems, a dual-processor ONYX2 as the main visualization engine, a dual-processor Origin 200 as the main server, and a number of dual-processor Octane and single-processor O2 computers, a 100 GBytes RAID 5 hard drive and a 2.6 TBytes archive system. Sophisticated visual display is provided on a 9'x6' screen through a Barco-1209S system in the main conference room of the Center which is also equipped with full-motion video conferencing capabilities with all campuses of the University of Massachusetts.

- **Analytical Laboratories for Coastal Systems**

Specialized laboratory and field instrumentation is used to monitor environmental parameters in wastewater and natural waters (both salt and fresh, surface and ground). A significant focus is on watersheds, bays, wetlands and innovative waste treatment technologies to minimize the potential impact of human waste disposal on coastal ecological health. Over 25,000 chemical assays are performed each year and communities representing over half of the coastal embayments in Massachusetts currently use data generated by the laboratory. Results impact management and policy decisions regarding restoration and remediation of affected sites, and modeling and monitoring of environmental systems.

- **Stable Isotope Biogeochemistry Laboratory**

This state-of-the-art facility specializes in high-precision measurements of stable isotopic composition of natural materials. These analyses have great utility for a wide variety of environmental and biogeochemical applications ranging in scope from local (tracing and identification of pollution sources) to global (identifying the controls on atmospheric CO₂). Two high-precision isotope ratio mass spectrometers are available at CMAST.

THE CENTER FOR MARINE SCIENCE AND TECHNOLOGY





Left: U.S. Senator Edward M. Kennedy announces \$1.2 million NASA grant for OPAMS
Middle: R/V Lucky Lady
Right: Slocum River estuary

The Center for Marine Science and Technology (CMAST) at the University of Massachusetts Dartmouth is unique among marine research laboratories.

CMAST research is a synthesis of basic and applied science focused on developing new knowledge, new technologies, and new industries.

UMass Dartmouth is the designated Center for Excellence in Marine Science and Technology for the Commonwealth of Massachusetts. CMAST is the only marine laboratory in the five-campus University of Massachusetts system, and makes full use of the university's expertise and infrastructure.

The Center's \$12 million facilities represent the Commonwealth's investment in marine science and marine technology research, education, community outreach, and economic development.

CMAST concentrates on the watersheds, embayments, and estuaries along the coastline of Massachusetts and the rest of New England, and on the waters of the adjacent U.S. Continental Shelf. This large area is an important natural laboratory because it is characterized by a great diversity of natural and human-induced (or anthropogenic) environmental variability.

CMAST research in the natural laboratory extends and combines the talents of faculty in 11 UMass Dartmouth departments. Research efforts are focused along cross-cutting themes: ocean prediction and monitoring systems; fishery management science; and advanced aquaculture systems; coastal zone systems; and ocean communications, tracking and control.

CMAST's systems approach links thinking about scientifically important problems with thinking about those that are important to society. CMAST views these problems within a total system, allowing the design of the most efficient and cost-effective sampling, arrays and methodologies to provide data about the condition of the natural laboratory, our coastal environment.

CMAST is an incubator for the ideas and innovation which produce vigorous economic development and sound public policy, while at the same time developing strategies to protect the natural environment for future generations.

education



The Center for Marine Science and Technology

CMAST is located on 2.6 acres situated between Rodney French Boulevard and the Battery Milliken on Clark's Cove, New Bedford. The two-story structure designed by Tsoi-Kobus Architects is approximately 32,000 gross square feet, and features 15 laboratories, including a free-standing acousto/optics tank.

CMAST accommodates 15 senior researchers and 20 support staff. Additional office space will be utilized at the Naval Reserve Center a few hundred yards from the laboratory.

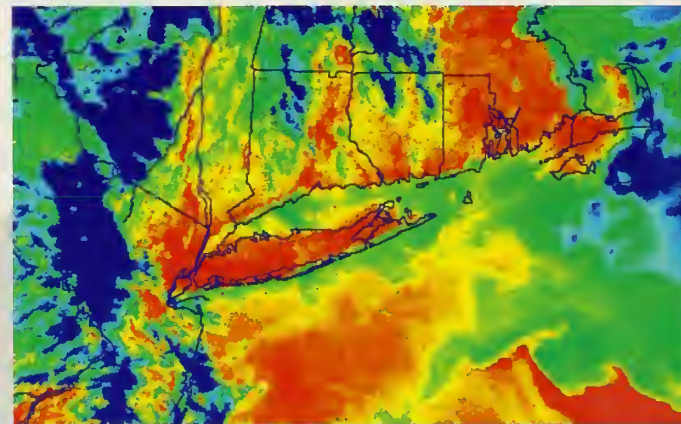
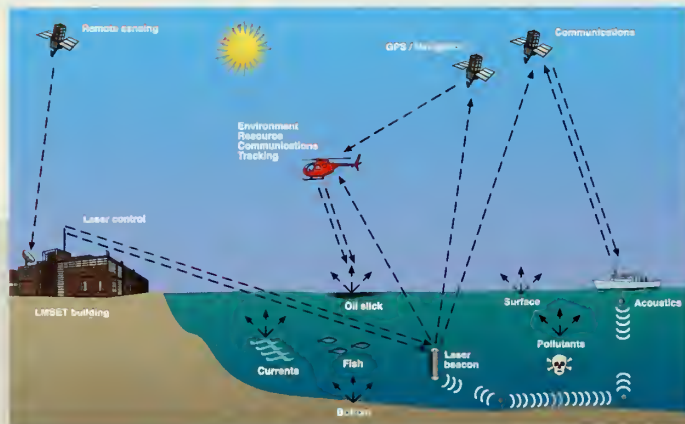
The facility incorporates a 300 gallon/minute flow-through sea water system which provides ambient Buzzards Bay sea water. It also contains these facilities:

- Sea-water tank room to store and maintain marine organisms for use in research and teaching;
- Instrumented acousto/optic test tank for research and experimentation in underwater acoustics, optics, and instrumentation;
- Greenhouse for the growth and long-term maintenance of aquatic photosynthetic organisms under natural light;

- 3 temperature control rooms for long-term behavioral and physiological experiments and acclimation of marine organisms for culture and reproduction;
- 15 research laboratories with salt water taps for individual researchers and teachers;
- Dock for temporary mooring, loading and off loading of research vessels.

Some support areas for the facility are: machine shop, electronic fabrication shop, computer room, radionuclide laboratory, multimedia/conference room, library/chart room.

Left: Communications, control and environmental monitoring in Buzzards Bay
 Right: Sea Surface temperature color map, July 5, 1996



The CMAST organization is engaged in federally-funded research projects with NOAA, NASA, NSF, and the USDA, with Massachusetts state agencies, and with private corporations. These include:

Ocean Prediction and Monitoring Systems: OPAMS

The OPAMS goal is to design an array of sensors to monitor changes in physical chemical properties of the coastal zone of the northeast U.S. which will serve as a natural laboratory. Data from measured parameters such as temperature, nutrients and plankton density will be used to describe the environmental profile of this natural laboratory. The profile will be used to develop mathematical models to forecast changing environmental conditions. The development of the sensor array will involve other research centers in the region. The environmental models can be used by governmental agencies and scientists to answer questions on

pollutant impacts and global climate change on fisheries and the coastal ecosystem.

The OPAMS program is funded by a \$1.2 million, 3-year, NASA grant beginning in June, 1997.

Commonwealth Coastal Zone Systems: COMCOZ

The COMCOZ goal is to develop computer models and sensor technology to assure responsible development and environmental protection in the commercial and agricultural use of bogs, bays and banks along the Slocum and Acushnet River estuaries and Buzzards Bay. A COMCOZ project is Massachusetts Environmental Monitoring and Management System (MEMMS). CMAST is working with the Massachusetts Office of Coastal Zone Management to develop a comprehensive marine/basin monitoring system to enhance the Commonwealth's technological capability and to improve

environmental decision making. Indicators of water quality, safe consumption of fish and shellfish, recreation safety, and protection of natural resources will be included in a standardized database designed to be easily accessible to state, federal and non-profit agencies. Other features will include a cost-benefit analysis capability, an implementation plan, and benchmarks for periodic performance assessments.

Ocean Communications, Tracking and Control: OCTC

CMAST will make use of laser light, underwater sound, and electromagnetic radiation to improve our capabilities in communications, tracking and control in the ocean and through the oceans' surface. These techniques will enhance our ability to operate underwater remotely operated vehicles (ROVs), probe underwater sensor suites, track fish stocks, and monitor the ocean environment.

Left: Dr. Brian J. Rothchild, Director, CMAST, and Dr. Allan R. Robinson, Gordon McKay Professor of Geophysical FluidDynamics, Harvard University
 Middle: New Bedford fishing fleet
 Right: Prof. Richard Ibara, left, at New Bedford Vocational Tech tilapia project



On-going optics activities include "through the surface" laser communications, tracking and control, laser induced underwater sound, ocean optical instrumentation and optical water quality.

Underwater acoustics activities include the development of fiber optic acoustic sensors, marine mammal acoustics and robot array design. Electromagnetic work includes satellite monitoring of ocean color and temperature.

Fisheries Assessment Management Systems: FAMS

The FAMS goal is to build stock assessment/fishery management models for the New England and Mid-Atlantic fishing industries.

A component of FAMS is the Massachusetts Fisheries Recovery Commission (MFRC). MFRC is charged with developing scientific and socio-economic research to facilitate the recovery of the Commonwealth's commercial fishing industry under the authorization and direction of the Seaport Bond Bill and the Secretary of Environmental Affairs for the Commonwealth of Massachusetts.

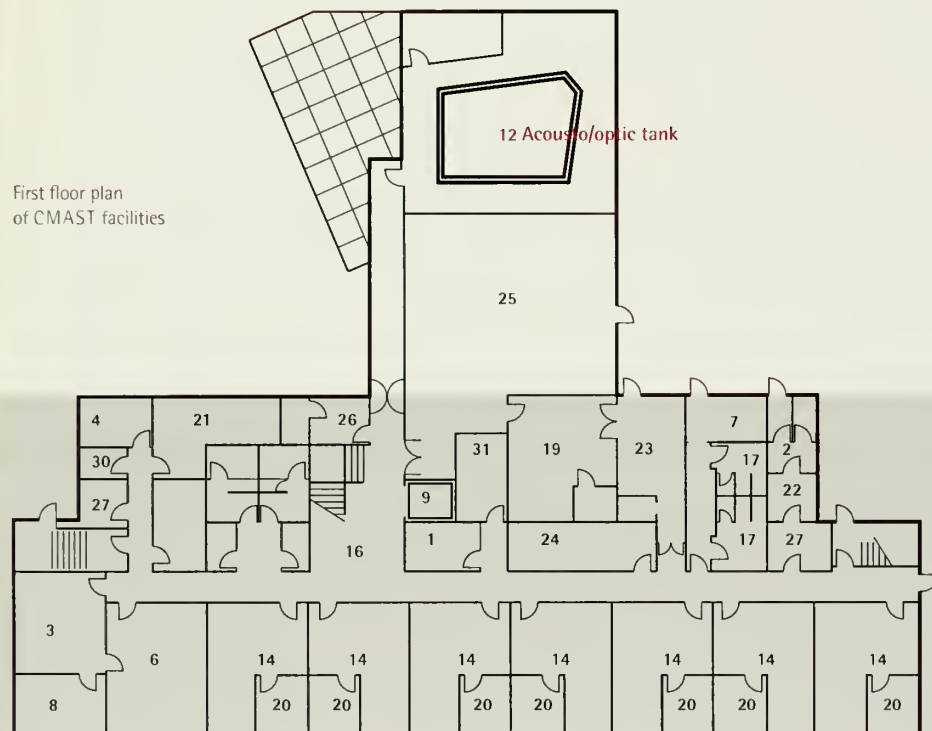
Aquaculture Systems Development: ASD

The ASD goal is to support existing aquaculture industry as well as to foster further growth through scientific research, policy analysis, and new technologies. A component of ASD is the Advanced Aquaculture Institute. Through the Advanced Aquaculture Institute (AAI), CMAST will build a partnership with industry to design, build, and manage environ-

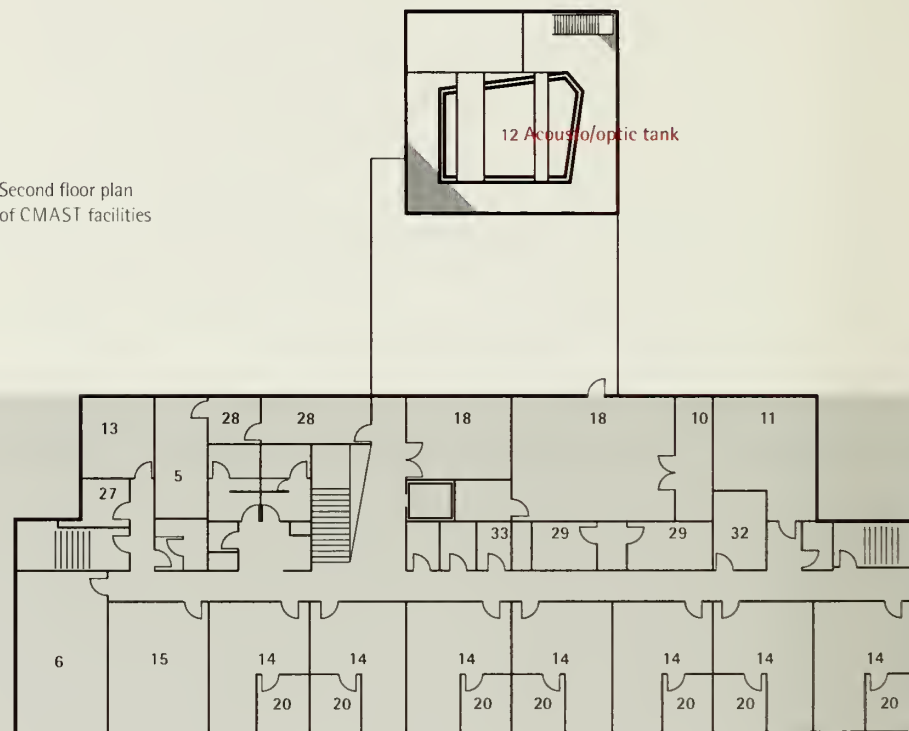
mentally sound, financially secure and productive fish farms in Massachusetts. The Northeast Regional Aquaculture Center (NRAC), an agency of the United States Dept. of Agriculture, has been based at UMass Dartmouth since 1987 to fund research, development and education within the aquaculture industry. The Electrical Power Research Institute (EPRI) focuses on aquaculture at its national aquaculture center located at UMass Dartmouth. Under the CMAST umbrella, these agencies will comprise AAI, a multidisciplinary aquaculture program with offices and laboratories in the Naval Reserve Center at Fort Rodman, a few hundred yards from the CMAST lab.

CMAST FACILITIES

First floor plan
of CMAST facilities



Second floor plan
of CMAST facilities



Acousto/Optic Test Tank

This state of the art underwater optic and acoustic test tank is designed to be a resource for local academic, government and industrial researchers and product developers.

Description

The 100,000 gallon, 30x20x20 ft. deep acousto/optic test tank has several special features making it uniquely useful for modern underwater acoustic and optic applications.

The tank is designed to use either sea or fresh water as the application may require. For optical work, the tank is built half below floor level and half above. Six large optical ports are built into the tank walls several feet above the floor to provide convenient access for optical experiments.

To provide an unusually quiet acoustic background, the tank is fully supported on vibration isolators. To reduce the effects of acoustic resonances, the tank is built with non-parallel sloping walls, and sloping bottom.

- | | |
|-----------------------------|---------------------------------|
| 1. Centrifuge prep | 18. Mechanical room |
| 2. Chemical storage | 19. Mechanical fabrication shop |
| 3. Clerical | 20. Office |
| 4. Cold room | 21. Phytoplankton storage |
| 5. Computer room | 22. Prep area |
| 6. Conference room | 23. Receiving |
| 7. Equipment storage | 24. Seawater monitoring lab |
| 8. Director's office | 25. Seawater storage |
| 9. Elevator | 26. Security |
| 10. Emergency generator | 27. Technician's office |
| 11. Greenhouse | 28. Tel/Data/Electrical room |
| 12. Acousto/Optic test tank | 29. Temperature control rooms |
| 13. Kitchen/lounge | 30. Water/Fire |
| 14. Laboratory | 31. Radionuclide lab |
| 15. Library/study | 32. Autoclave/Still |
| 16. Lobby | 33. Seawater pipes |
| 17. Lockers | |

Left: Dr. Mark A. Altabet
 Middle: Dr. John R. Buck
 Right: Student taking Buzzards
 Bay water sample



Mark A. Altabet, Ph.D., Harvard: Post-doctoral scholar Woods Hole Oceanographic Institute, Assoc. Prof. of Chemistry, UMass Dartmouth **Field:** Nitrogen isotopic ratio as a natural tracer for processes influencing the marine nitrogen cycle and biogeochemical processes coupled to it.

James J. Bisagni, Ph.D., Oceanography, University of Rhode Island: Assoc. Prof. of Physics, UMass Dartmouth **Field:** Remote sensing of sea surface temperature, ocean pigments; dynamic ocean topography, surface waves and the biological applications of these data; dynamics of coastal fronts; atmospheric propagation and attenuation of electro-magnetic radiation.

David A. Brown, Ph.D., Naval Post Graduate School: Asst. Prof. of Electrical and Computer Engineering, UMass Dartmouth **Field:** Acoustic and fiber optic sensor systems for underwater acoustic applications.

John R. Buck, Ph.D., Electrical & Oceanographic Engineering, MIT/WHOI: Asst. Prof. of Electrical and Computer Engineering, UMass Dartmouth **Field:** Underwater acoustics and signal processing.

Chi Hau Chen, Ph.D., Purdue: Prof. of Electrical and Computer Engineering, UMass Dartmouth **Field:** Applications of neural network methodologies to prediction, classification, modeling and estimation problems in marine science and technology; applications of pattern recognition and computer recognition techniques in marine science; statistical time series analysis and modeling of natural phenomena related to ocean environment.

Richard C. Connor, Ph.D., University of Michigan: Assoc. Prof. of Biology, UMass Dartmouth **Field:** Social behavior and relationships with a focus on social alliance formation of male bottlenose dolphins in Sharks Bay, Australia.

Antonio H. Costa, Ph.D., Electrical Engineering, University of Rhode Island: Assoc. Prof. of Electrical and Computer Engineering, UMass Dartmouth **Field:** Signal and image processing with an emphasis on Time-Frequency and Time-Scale methods.

education



Robert K. Edgar, Ph.D., Botany, Rutgers University: Prof. of Biology, UMass Dartmouth **Field:** Database development of the contemporary diatom species in Kenya for calibration of paleological inferences; life history of cranberry fruitworm and its population genetic structure to define environmentally benign means of population control; reconstruction of coastal sea level change on a fine temporal scale over the past 3,000 years, building a model for the spatio-temporal distribution of the fossil diatoms in coastal sediments; diatom sexuality in relation to cell division.



Lee Estes, Ph.D., Worcester Polytechnic Institute: Prof. of Electrical and Computer Engineering, UMass Dartmouth **Field:** Communication through the ocean surface—subsurface laser to airborne receiver; airborne laser induced acoustic waves at water surfaces; optical water quality—Buzzards Bay survey, simulation and instrumentation development; ocean instrumentation—advanced fisheries management information system.

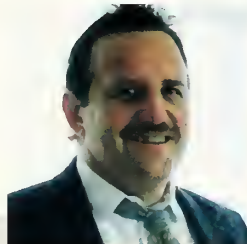
Gil Fain, Ph.D., University of Rhode Island, Prof. of Electrical and Computer Engineering, UMass Dartmouth **Field:** Communication through the ocean surface—subsurface laser to airborne receiver; airborne laser induced acoustic waves at water surfaces; optical water quality—Buzzards Bay survey, simulation and instrumentation development; ocean instrumentation—advanced fisheries management information system.

Left: Drs. Lee Estes and Gil Fain, with graduate student Joe Harris, conducting an optical absorption and attenuation survey of Buzzards Bay
Right: CMAST research supports the cranberry industry

Neil Fennessey, Ph.D. Tufts University, Asst. Prof. of Electrical and Computer Engineering, UMass Dartmouth **Field:** New procedures to assess the potential impacts of possible climate change on the water resource systems of the Northeast U.S.; new procedures to estimate streamflow at ungauged locations throughout the Northeast; new procedures to estimate free surface evaporation and evapotranspiration from land surfaces and water bodies in the Northeast; development and assessment of water resources policy, particularly real-time water withdrawal planning and management and water allocation policy.

economic development

Left: Dr. Daniel L. Georgianna
Right: New Bedford Harbor



Avijit Gangopadhyay, Ph.D., University of Rhode Island. Asst. Prof. of Physics, UMass Dartmouth **Field:** Ocean circulation (Atlantic, Pacific, Indian), feature models, numerical ocean modeling, bio-physical coupling, satellite and hydrographic data assimilation in ocean models, shelf oceanography.

Daniel L. Georgianna, Ph. D. Economics, UMass Amherst: Prof. of Economics, UMass Dartmouth **Field:** Fisheries management with focus on processing sector; gear development.

Juanita N. Gearing, Ph.D. Chemistry, University of Texas at Austin: Assoc. Prof. of Chemistry, UMass Dartmouth **Field:** Marine organic chemistry. Research: delineation of the specific sources of a group of biogenic compounds which are prominent in the sediments of Buzzards Bay; measurement of the states of degradation of particular hydrocarbons in the highly acidic soils of cranberry bogs.

Robert W. Hinkle, Ph.D., Biology, Boston University: Visiting Lecturer, Biology, UMass Dartmouth **Field:** Evolution and biochemistry of the microsporidia for the development of therapeutic agents that interdict microsporidial infections in humans and marine mammals.

William Hogan, Ph.D., Economics, Cornell University: Prof. and Chair of Economics, UMass Dartmouth **Field:** Marine resource economics and public policy.

Frederick Kazama, Ph.D., University of California: Prof. of Biology, UMass Dartmouth **Field:** Development of quality control and efficiency methods for seafood processing.

Dayalan Kasilingam, Ph.D., Electrical Engineering, CalTech: Asst. Prof. of Electrical and Computer Engineering; Director, Remote Sensing Group, UMass Dartmouth **Field:** Synthetic Aperture radar imaging, radar scatterometry, applied electromagnetics and neural networks.

Steven J. Leon, Ph.D., Michigan State University: Prof. of Mathematics, UMass Dartmouth **Field:** Applied mathematics, specializing in scientific computing; shallow water computations to determine appropriate matrix techniques.



Left: Peridinium
Middle: Dr. Jefferson Turner
Right: Dr. Bal Ram Singh

Boleslaw Mikolajczak, Ph.D., Electrical Engineering, Technical University, Poland, Doctor Habilitis in Computer Science: Prof. and Chair of Computer and Information Science, UMass Dartmouth **Field:** Applicability of systematic design of complex information systems with multimedia, large databases, decision support and distributed components.

Steven C. Nardone, Ph.D., Electrical Engineering, University of Rhode Island: Prof. of Electrical and Computer Engineering, UMass Dartmouth **Field:** Mathematical theory of evidence, its relation to fuzzy sets and measurers, and their application to state estimation in the presence of modeling ambiguities.

Nancy J. O'Connor, Ph.D., North Carolina State University: Asst. Prof. of Biology, UMass Dartmouth **Field:** Ecology of estuarine and marine invertebrates, particularly settlement and metamorphosis of larval invertebrates; crustacean biology; biofouling.

James Sears, Ph.D., Botany, UMass Amherst: Prof. of Biology, UMass Dartmouth **Field:** Systematic and ecology of benthic marine algae, utilizing a ROV for observation of deep growing algae.

Alexei Sharov, Ph.D., Fisheries Biology, Moscow State University: Research Associate, CMAST **Field:** Stock assessment and population dynamics.

Bal Ram Singh, Ph.D. Texas Tech University: Assoc. Prof. of Chemistry, UMass Dartmouth **Field:** Differential Glutathione-S-transferase (GST) activity oyster and quahog; whether GST can catalyze breakdown of PCBs in marine mammals.

Jefferson Turner, Ph.D. Oceanography, Texas A&M University: Prof. of Biology, UMass Dartmouth **Field:** Community structure and dynamics of marine plankton and their relation to other components of pelagic food webs; environmental changes due to anthropogenic and/or natural variations.

CMAST PROGRAM STRUCTURE

Program Coordination				
OPAMS Ocean Prediction and Monitoring Systems	COMCOZ Commonwealth Coastal Zone Systems	FAMS Fisheries Assessment Systems Management	OCTC Ocean Communications, Tracking and Control	ASD Aquaculture Systems Development



Dr. Brian J. Rothschild is the director of the Center for Marine Science and Technology at the University of Massachusetts Dartmouth. His fields of expertise are in population dynamics, biological oceanography, fisheries management and natural resources policy. He was professor of the Center for Environmental and Estuarine Studies at the University of Maryland; Senior Policy Advisor, Office of the Administrator of NOAA; Director, Office of Policy Development, National Marine Fisheries, Washington, D.C.; Director, Southwest Fisheries Center, National Marine Fisheries Service, La Jolla, California; Deputy Director, Northwest Fisheries Center, National Marine Fisheries Service, Seattle, Washington.

He has had faculty and other associations with the University of Washington, University of Hawaii, Scripps Institution of Oceanography, Rosenstiel School of Marine and Atmospheric Science, University of Miami; Institut fur Meereskunde an Der Universitate Kiel; Woods Hole Oceanographic Institute, and Harvard. He has written or edited five books and nearly 100 research papers. He is currently on the Editorial Board of the "The Sea: Ideas and Observations on Progress in the Study of the Seas." He has served on many national and international committees such as the secretary of the Scientific Committee on Oceanic Research (SCOR); chair of the Scientific Steering Committee of the Global Ocean Ecosystem Dynamics (GLOBEC); member of the Ocean Studies Board of the National Research Council; and member of the Mid-Atlantic Fisheries Management Council.

Directions to the Marine Laboratory

From any direction, take Route 195 toward New Bedford and take the Route 18 exit south.

You will pass through several sets of lights, and Route 18 becomes Water Street, then West Rodney French Boulevard.

On West Rodney French Boulevard you will pass through the city's hurricane dike. CMAST is located at the point of West Rodney French Boulevard.

CMAST phone: (508) 999-8193.

ABOUT THE UNIVERSITY OF MASSACHUSETTS DARTMOUTH

umass dartmouth



Founded in 1895 as textile schools in the neighboring cities of New Bedford and Fall River, UMass Dartmouth was merged into Southeastern Massachusetts Technological Institute in 1960. In 1964, it was renamed Southeastern Massachusetts University in recognition of its status as a comprehensive university offering baccalaureate and master's degrees in the Arts and Sciences, Engineering, Business, Nursing and the Visual and Performing Arts. In 1991, SMU was incorporated into the University of Massachusetts system and was renamed University of Massachusetts Dartmouth. UMass Dartmouth has since added a Ph.D. in Electrical Engineering with emphasis in marine applications, as well as joint doctorates in physics and chemistry. UMass Dartmouth is the state's only university — public or private — south of Boston and serves the SouthCoast region in its dual mission as the leading institution of higher education and a major resource and engine for economic development.

General information

Dr. Peter H. Cressy, Chancellor

Visit UMass Dartmouth at our Internet site on the World Wide Web: <http://www.umassd.edu>

Directions to UMASS Dartmouth from:

Boston Route 128/93 to Route 24 S. at exit 12 take 140 S. to exit 2 Rt I-195 W. to exit 12A

Cape Cod Route I-195 W. to exit 12A

Providence Route I-195 E. to exit 12

Exit 12(A) go south on Faunce Corner Road for 1 mile to Rt. 6: cross Rt. 6 and continue for 1/2 a mile to Old Westport Rd. and bear to right; continue on Old Westport Rd. for 1 mile. The campus is on the left.

UMASS Dartmouth phone (508) 999-8000

Photo credits

Dr. James Sears
Dr. Jefferson Turner
Cape Cod Cranberry Growers Assoc.
Alma Cummings

CMAST RESEARCH FACILITIES

- Sea water tank room to store and maintain marine organisms for use in research and teaching;
- Instrumented acoustic/lab test tank room for research and experimentation in underwater acoustics, optics and instrumentation;
- Greenhouse for the growth and long-term maintenance of aquatic photosynthetic organisms under natural light;
- 3 temperature control rooms for long-term behavioral and physiological experiments and acclimation of marine organisms for culture and reproduction;
- 15 research laboratories with salt water taps for individual researchers and teachers;
- Dock for temporary mooring, loading and off loading of research vessels.

UMass Dartmouth

University of Massachusetts Dartmouth
285 Old Westport Road
North Dartmouth, Massachusetts 02747-2300

(508) 999-8000